Purdue Cooperative Extension Service

April 28, 2006 - Issue 5

In This Issue

Insects, Mites, And Nematodes

Bean Leaf Beetle Finding Early Soybean - *(John Obermeyer Christian Krupke, and Larry Bledsoe)*

- Early-emerging soybean should be scouted for bean leaf beetle
- Cotyledons and young leaves are prime feeding targets
- Use treatment thresholds to make control decisions

A small percentage of soybean fields have been planted and are beginning to emerge. Emerging plants in these fields may serve as "trap crops" for bean leaf beetles. Beetles that overwintered successfully are seeking both wild and cultivated legumes to feed on. Several have observed and reported bean leaf beetle feeding in early planted fields/plots, none have been treatable levels.

One of the most critical times for soybean damage is from emergence through the establishment of the first trifoliate. Extensive cotyledon damage is cause for serious concern - if cotyledons are being destroyed before the unifoliolate leaves fully emerge or if the growing point is severely damaged, reduced yields are likely. However, once trifoliate leaves have unrolled, soybean can tolerate up to about 40% defoliation without yield loss.

Early bean leaf beetle damage

For cotyledon- and unifoliate-stage soybean, refer to the following threshold values:*

Crop Value ($/bu)	Control Cost, $/acre				
	6.00	8.00	10.00	12.00	16.00
5.00	3	4	5	6	8
6.00	3	4	5	5	7

*Table modified from the University of Nebraska

Armyworm and Black Cutworm Moth Update - *(John Obermeyer Christian Krupke, and Larry Bledsoe)*

- Armyworm moth arrival is still getting our attention
- No economic infestations of larvae have been detected in the Midwest
- Black cutworm moths have had no problem finding weedy fields for egg-laying

Armyworm moth numbers continue to climb in our black light traps, but still very low in comparison to the "great" 2001 outbreak. University of Kentucky continues to catch high numbers of armyworm moths in their pheromone (not black light) trap. It is difficult to correlate the different trap (i.e., light vs. pheromone) catches. Both trapping methods are more "art than science" with regard to interpreting the data. At this time, the only worm reports we have are from southern Illinois, where there is some light damage in wheat. The larvae are still small, less than ½ inch in length. These small larvae and their inconspicuous leaf feeding are difficult to locate and diagnose at this early stage. Early May scouting of grass crops (pastures, wheat, no-till corn) in southern Indiana should be sufficient to avoid potential losses. We will have another update on this in next week's *Pest&Crop*.

Black cutworm moths have declined in numbers compared to the last week's catch. The larvae are generalist feeders and do not need to wait for crops to feed on, and there is potential for significant egg-laying in fields that were, or still are, rampant with weeds. Tillage will disrupt and destroy many hatching larvae seeking green plant material in which to feed. We have begun accumulating heat units (base 50ºF) from intensive moth captures that occurred during mid-April. We will continue to keep you updated on anticipated time of first-cutting.

Black Cutworm Adult Pheromone Trap Report
Week 1 = 4/13/06 - 4/19/06 Week 2 = 4/20/06 - 4/26/06

County	Cooperator	BCW Trapped	
		Wk 1	Wk 2
Adams	Roe/Mercer Landmark	2	0
Allen	Gynn/Southwind Farms	6	2
Benton	Babcock/AgroKey (Boswell)	1	7
Benton	Babcock/AgroKey (Earl Park)	7	12
Clay	Growers Co-op (Brazil)	1	0
Clay	Growers Co-op (Clay City)	2	8
Daviess	Venard/Venard Consulting	0	1
Elkhart	Kauffman/Crop Tech	3	3
Fountain	Mrockiewicz/Syngenta	4	14
Fulton	Jenkins/Fulton-Marshall Co-op	7	0
Gibson	Hirsch/Hirsch Family Farms	5	
Green	Maruszewski/Pioneer	2	
Knox	Growers Co-op (Fritchton)	0	6
Knox	Growers Co-op (Freelandville)	0	4
Knox	Growers Co-op (Oaktown)	1	3
Knox	Lam/SWPAC	1	1
Lake	Kleine/Kleine Farms (#1)	0	2
Lake	Kleine/Kleine Farms (#2)	0	1
Marshall	Barry/Fulton-Marshall Co-op		1
Marshall	Green/Pioneer	5	
Newton	Babcock/AgroKey (Goodland)	1	9
Porter	Hutson/Purdue CES	0	
Putnam	Nicholson/Nicholson Consulting	13*	11
Randolph	Boyer/DPAC	12	0
Rush	Tacheny/Pioneer	26*	0
Sullivan	Growers Co-op (New Lebanon)	9	1
Sullivan	Growers Co-op (West)	1	2
Sullivan	Growers Co-op (East)	2	3
Tippecanoe	Obermeyer/Purdue	129*	50*
Tipton	Johnson/Pioneer	0	
White	Reynolds/Orville Redenbacher (Plant)	1	0
White	Reynolds/Orville Redenbacher (Kennedy)	3	0
Whitley	Walker/NEPAC	4	0

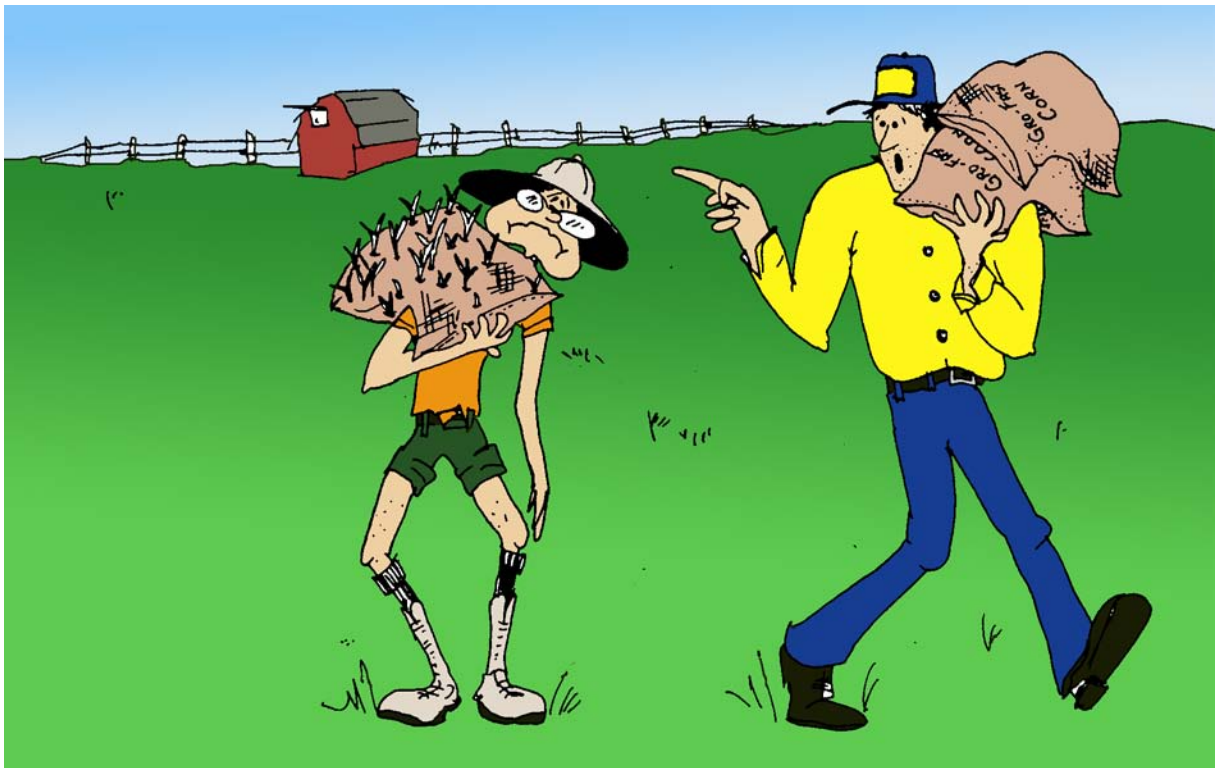
* = Intensive Capture...this occurs when 9 or more moths are caught over a 2-night period

Black Light Trap Catch Report - (*John Obermeyer*)

County/Cooperator	4/11/06 - 4/17/06							4/18/06 - 4/24/06						
	VC	BCW	ECB	SWCB	CEW	FAW	AW	VC	BCW	ECB	SWCB	CEW	FAW	AW
Dubois/SIPAC Ag Center	7	2	0	0	0	0	8	6	6	0	0	0	0	83
Jennings/SEPAC Ag Center	0	0	0	0	0	0	2	2	1	0	0	0	0	4
Knox/SWPAC Ag Center	0	0	0	0	0	0	0	0	2	0	0	0	0	4
LaPorte/Pinney Ag Center								0	0	0	0	0	0	6
Lawrence/Feldun Ag Center	0	2	0	0	0	0	40	3	7	0	0	0	0	90
Randolph/Davis Ag Center	2	1	0	0	0	0	24	0	0	0	0	0	0	19
Tippecanoe/TPAC Ag Center	1	0	0	0	0	0	5	5	0	0	0	0	0	27
Whitley/NEPAC Ag Center								1	1	0	0	0	0	24

VC = Variegated Cutworm, BCW = Black Cutworm, ECB = European Corn Borer, SWCB = Southwestern Corn Borer, CEW = Corn Earworm, FAW = Fall Armyworm, AW = Armyworm

Bug Scout



Looks like you have the bag of the super-early-germinating variety!

Weeds

Quick Burndown Programs for No-Till – (*Bill Johnson and Glenn Nice*)

Due to recent warm, wet weather and aggressive winter weed growth, burndown applications have not been applied in many no-till fields. Planting season is here and there is urgency expressed by many growers for a quick burndown to allow soils to dry out and planters to run through the field as soon as possible. Typically, translocated herbicides such as glyphosate and 2,4-D work somewhat slower than a contact product such as Gramoxone, unless daytime air temperatures are in the high 70's or 80's. Under "typical" spring weather conditions with daytime air temperatures in the 60's and low 70's, the Gramoxone-based programs will provide a quicker desiccation of weed biomass, but may not be as effective as glyphosate on some of the larger perennial and annual weeds. There are a couple herbicide programs that fit this scenario where a quick desiccation is desired.

In corn production, consider the use of Gramoxone + atrazine or an atrazine premix or Lumax/Lexar. 2,4-D can be added to this mix to improve control of dandelion and horseweed (marestail) but one should wait at least 7 days to plant corn if 2,4-D is used.

In soybean production, consider the use of Gramoxone + Sencor (or products containing Sencor such as Canopy, Domain, or Boundary), Gramoxone + Gangster, or glyphosate + Valor or Aim. We have observed that the addition of Valor or Aim to glyphosate can speed up the process of weed dessication compared to glyphosate alone, but they won't dessicate the vegetation as quickly as the Gramoxone-based treatments. As mentioned above, 2,4-D can be added to all of these treatments to improve control of dandelion, horseweed (marestail), giant ragweed and lambsquarters, but users should be aware of the proper interval before soybean can be planted which is 7 days for the 1 pt/A rate.

For the Gramoxone treatments to be most effective, they should be applied in at least 15 GPA carrier volume to achieve adequate coverage and the higher end of the labeled rate range should be used if most of the weeds are 6 inches tall or more.

For more information on no-till burndown weed control programs, see pages 26-43 of the 2006 Weed Control Guide for Ohio and Indiana at this website <http://www.btny.purdue.edu/Pubs/WS/WS-16/>.

Plant Diseases

Purdue Researcher Offers Wheat Virus Screening - (*Shawn P. Conley, Greg Shaner, and Joe Anderson*)

- Screen your wheat samples for viruses (no cost other than shipping)

Barley yellow dwarf is considered one of the most damaging diseases of wheat and pasture grasses in the world. There is some question however; as to the prevalence and impact of barley yellow dwarf on Indiana wheat production systems. To quantify the scope of this problem Joe Anderson (an adjunct Professor with the USDA and Purdue) has developed a new method to simultaneously screen wheat cultivars for the major wheat virus diseases (Barley Yellow Dwarf, Wheat Spindle Streak Mosaic, Wheat Soilborne Mosiac) that we have in Indiana. Joe is currently in the ramp-up stage and would like to test any and all samples that show virus symptoms (Please see below for description of symptoms and attached image of BYDV). There is no cost to those who submit samples, other than shipping. Due to the large number of samples we hope to receive there will not be a quick turn around time for these samples. Please do not use this research project as a means of quick wheat diagnostics. If diagnosis of wheat problems is needed, samples should be sent to the Purdue Plant & Pest Diagnostic Laboratory. The ultimate goal of Joe's project is to develop a virus range map for Indiana. This map will assist growers in making future wheat variety selections based on disease resistance characteristics. Please see below for requested information.

Symptomolgy: light green to yellow to red or purple streaks, mottling, and chlorosis. Please see Image 1. entitled "Barley Yellow Dwarf Symptoms"

Sample preparation and shipping: Minimum of 4 to 5 leaves, 5 inches in length; wrapped in newspaper; placed in a Ziploc bag and send either first class or UPS. More than one sample can be sent per box; however please provide all necessary information for each sample.

Barley yellow dwarf symptoms

Information needed: We would like GPS coordinates, but county name, zip code, and road intersections will work.

Ship samples and direct all questions to: Joseph Anderson, Department of Agronomy, Purdue University, 915 West State Street, West Lafayette, IN 47907-2054; Ph: 765-494-5565; Email: janderson@purdue.edu

Agronomy Tips

Profitability of Cutting Seeding Rates: Fact or Fiction - (*Shawn P. Conley and Greg Shaner*)

- In most situations a uniform stand of 100,000 plants per acre will yield 100% yield potential in drilled soybean. Rowed beans require a minimum of 80,000 plants per acre.

Seed input costs coupled with tighter profit margins are forcing growers to reconsider their soybean seeding rates. In a recent soybean production survey growers were asked to list their current row spacing and soybean seeding rates (Table 1). The results of this survey indicated that 57% of Indiana soybean growers are planting in rows spaced ≤10 inches apart, 31% of growers are between 11 and 20 inches, and 12% of growers are ≥21 inches. Within each row spacing category, growers may be over-planting as much as 6% (≤ 10 inches), 24% (between 11 and 20 inches), or 33% (≥21 inches). These results suggest that growers are relatively close to the Purdue University recommendations for row spacings ≤10 inches; however there is less confidence in the seeding rate recommendations in rows spaced ≥11 inches. Those growers at ≥11 inches would benefit most by re-evaluating their current seeding rate practices.

To continue to refine Purdue University seeding rate recommendations, research was conducted at six locations across Indiana in 2005. Our results indicate that if growers have a relatively uniform soybean stand of 100,000 plants per acre or greater, yield potential is 100% in full season soybeans (Table 2). This data supports findings from research done several years ago. To achieve a more uniform soybean stand under reduced seeding rates it may prove cost effective to use a fungicide seed treatment. Decades of Purdue University data has shown no effect of soybean seed treatments on grain yield; however we have often seen a significant increase in stand. The key is to keep final soybean stands above 100,000 plants per acre. Growers should run the numbers for their farm to determine if it is more cost effective to plant more seeds or utilize a seed treatment.

Table 1. Comparison between Purdue University soybean seeding rate recommendations and actual grower practices (1330 responses).

Row Spacing (Inches)	Actual Seeding Rate (Seeds Per Acre)	Purdue Recommendation (90% Germination)	Percent of Respondents
≥21	155,000	116,200	12%
11 ≥ x ≤ 20	180,000	145,200	31%
≤ 10	198,000	186,700	57%

Table 2. Impact of plant population (7.5 inch rows) on soybean grain yield.

Target Stand[3]	Northern Locations[1] Actual Stand	Yield (bu/a)[4]	Southern Locations[2] Actual Stand	Yield (bu/a)[4]
50,000	46,100	66.1 c	50,600	78.8 b
100,000	94,000	72.6 b	101,200	87.7 a
150,000	141,300	75.7 ab	144,300	91.2 a
200,000	170,600	78.8 a	208,000	91.1 a
250,000	209,200	79.0 a	261,507	92.6 a

[1]Purdue University Agricultural Centers: PPAC, TPAC, NEPAC, and Davis.
[2]Purdue University Agricultural Centers: SEPAC and SWPAC.
[3] Plots were seeded assuming 90% germination.
[4]Within a column of yield data, there is a 95% probability that means followed by a letter in common are not statistically different.

Bits & Pieces

The 2006 Crop Diagnostic Training and Research Center's Workshop Schedule

The Purdue University Crop Diagnostic Training and Research Center (DTC) is known across the Midwest for its unique "hands-on" approach for teaching the art and science of accurately diagnosing agricultural crop problems. The Center is designed to provide informative topics in a "real world" environment, where agriculturists can sharpen their crop problem trouble-shooting skills and evaluate new and alternative management strategies. The long-term goal of the Center is to provide quality, state-of-the-art training in all aspects of crop production and management.

At the DTC -- Learning is fun!

This season, we are offering 4 different diagnostic workshops. These workshops are:

Forage Management Workshop, **June 15**
Integrated Problem Solving Workshop, **June 16**
Mid Season Diagnostic Workshop, **July 13**
Late Season Diagnostic Workshop, **August 29**

For more information regarding these workshops, please visit our Web site at: **<http://www.agry.purdue.edu/dtc/index.html>**

Weather Update

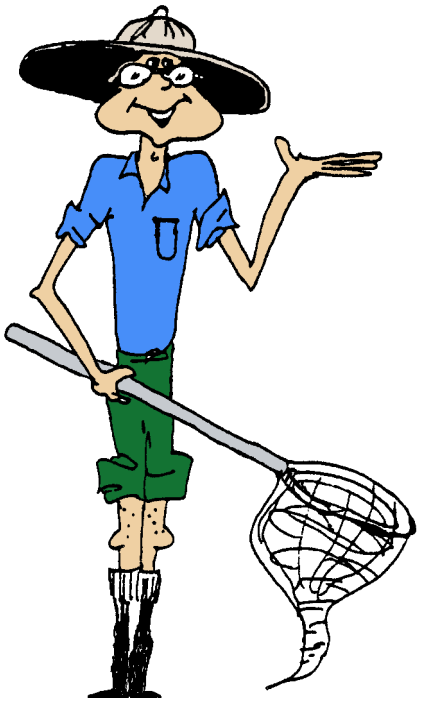
Temperatures as of April 26, 2006

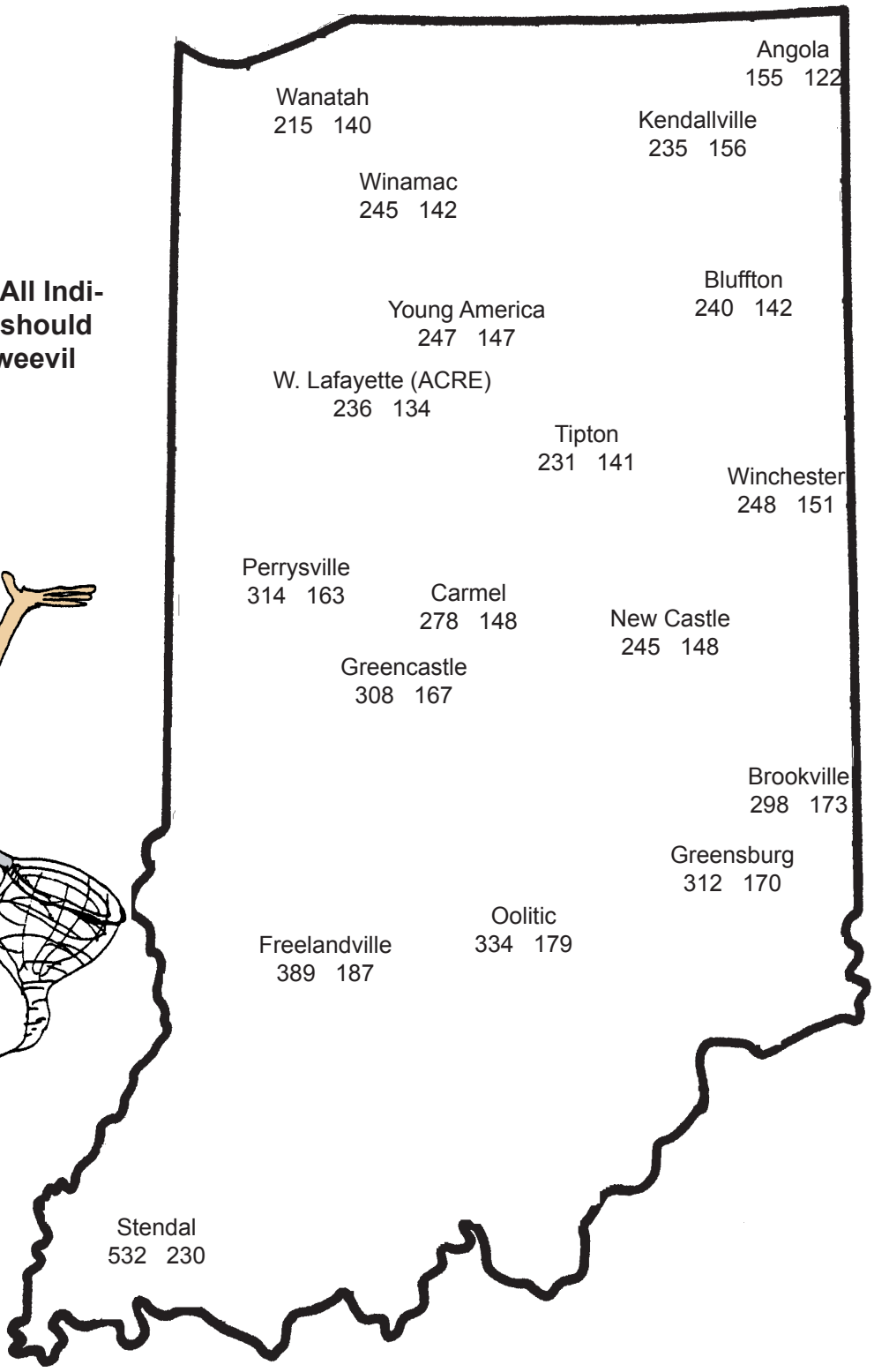
MAP KEY
Location HU48 GDD(2)

HU48 = heat units at a 48°F base from Jan. 1, for alfalfa weevil development (begin scouting at 200)

GDD(2) = Growing Degree Days from April 12 (2% of Indiana's corn planted), for corn growth and development

Bug Scout Says "All Indiana alfalfa fields should be scouted for weevil feeding."





4" Bare Soil Temperatures 4/26/06

Location	Max.	Min.
Wanatah	66	40
Columbia City	60	42
Lafayette	67	44
Farmland	64	43
Butlerville	66	48
Vincennes	69	54